

Conservation crisis? Status of jaguars *Panthera onca* in Corcovado National Park, Costa Rica

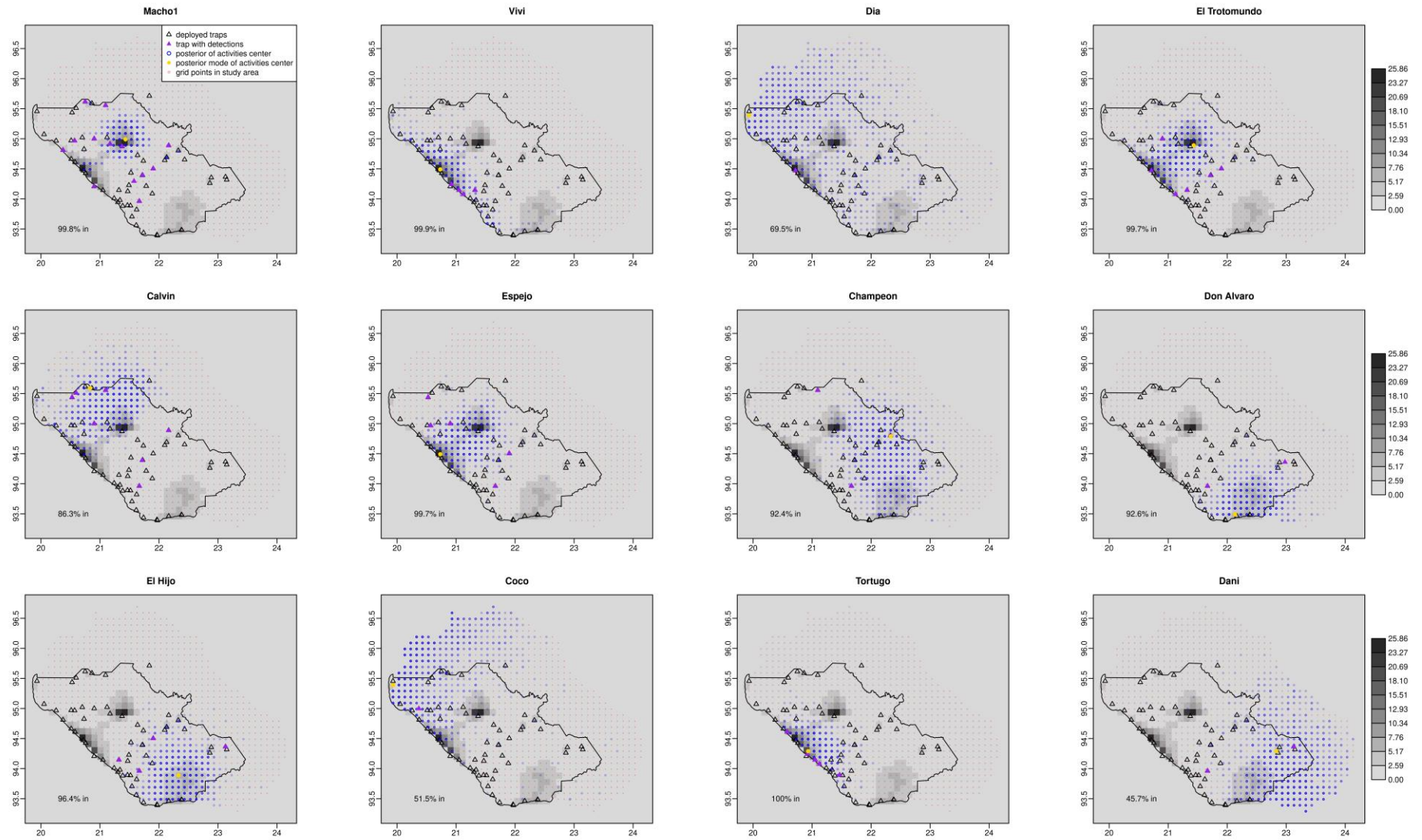
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SUPPLEMENTARY MATERIAL 1 Parameters in spatially-explicit capture-recapture Jolly-Seber model.

Data	Range	Observed	Meaning
$y_{i,j,k,t}$	{0,1}	yes	Detection status (1 for detected) of individual i at trap j , secondary occasion k and year t
$d_{j,k,t}$	{0,1}	yes	Deployment status (1 for deployed) of trap j during secondary occasion k and year t
x_j	R^2	yes	Spatial location of trap j
Hidden variables			
$z_{i,t}$	{1,2,3}	no	Status of individual i at year t , 1=not yet recruited, 2=alive, 3=dead
s_i	R^2	no	Spatial location of activity center of individual i
Parameters on population dynamics			
ψ	(0,1)	no	Probability an individual is alive in the first year
γ	(0,1)	no	Probability an individual is recruited in subsequent years
ϕ	(0,1)	no	Probability that an alive individual survive in the year
β	R	no	Effect of prey on spatial selection
Parameters on distance sampling			
p_0	(0,1)	no	Baseline detection probability when individual centered at the trap
α	R^+	no	Speed detection probability decays, spatial scale of detection.

SUPPLEMENTARY MATERIAL 2 Individual jaguar activity centres based on the results of a spatially-explicit Jolly Seber model of camera-trap data for Corcovado National Park, Costa Rica, 2015-2021.



SUPPLEMENTARY MATERIAL 3 Forecasting jaguar population size out two years under two different scenarios for Corcovado National Park, Costa Rica. Top: forecasted population size assuming recruitment and survival remain constant. Bottom: forecasted population size assuming survival remains constant, but recruitment is doubled (e.g., increased immigration).

